

SEQUENCE LISTING

<110> Pharmacia & Upjohn
Gu, Yizhong

<120> Canine L-PBE Sequences

<130> 1492

<150> 60/437,530

<151> 2002-12-31

<160> 16

<170> PatentIn version 3.1

<210> 1

<211> 2169

<212> DNA

<213> Canis familiaris

<400> 1

```

atggccgagt atacgcccgt gcacaacgcc ttggcgttga tccgcctccg aaacccgccg      60
gtcaacgcca tcagtacggc tgtactccgt ggaataaaag acggattgca gaaagctacc      120
acagaccgta cagtaaaagc tattgtgctt tgcggagcag atggcaaatt ctctgcaggt      180
gctgatatcc acagcttttg tgagcccaga aagtctgact ttgtactagg acatatagta      240
gatgaaatac agagaactga gaagcccgtg gtggcagcta ttcaaggcct ggcttttagga      300
ggggggactgg agctggcgtt gggctgtcac tataggattg ctcatgcaga ggctcaaatt      360
ggcttcccag aagtcacact aggaatcctt cctgggtgca gaggaacca gcttctcccc      420
agactcattg gagttcctgc tgcacttgac ttaattacct caggaagaca tgttttggca      480
gatgaagcac tcaagctggg taccctagat gaaattgtga actcagaccc ggttgaagaa      540
gcaatcaaat tagcccagag aatctctgat caatctctag aatcccgtag actctgcaac      600
aagccaattc agagcttgcc caacatggag agtattttca gtgaagccct ttcgaagatg      660
cagaagcagc atcccgggtg ccttgctcca gagacttggt tccgtgcagt ccaggctgcc      720
gtgcattgtc cctacgaagt gggcatccag aaggagaagg agctgtttat gtaccttcag      780
aaatcagggc aggctagagc cctgcaatat gctttctttg cagagaggaa tgcaactaag      840
tggatcaact cctctggagc atcctggaaa acagccatag cacagcccat ctctcagtt      900
ggcgttgtcg gcttggaac aatgggccga ggcattgttg tttctcttgc gaaggccaag      960
atcccagtgat ttgctgtgga atcggacaag aagcagctag agactgctga tatgataata      1020
actaccctct tggaaaagga agcatccaaa atgcagcgta gcagccaccc gtcgttagga      1080
ccaaaacca ggtaactac atctatgaag gagcttggtg gtgtagattt agtcattgaa      1140
gcagtatttg aggaaattaa cctgaagaag aggggtcttg ctgaactgtc ggctatatgc      1200
aagccagaag cttttctgtg caccaatact tcagccctag acattgatga gattgcttct      1260
tccactgacg gtcctcactt ggtcattggc actcacttct tctcaccagc tcacgtcatg      1320
aagttgttag agattattcc cagccaatac tcttccccca ctaccattgc cacagttatg      1380
aatttatcaa aaaagattaa aaaaattgga gtagttgtag gtaactgttt tggatttggt      1440
ggcaatcgaa tgttgaagcc ttattacaat cagacgtatt tcttgttaga agaaggcagt      1500
aggccagagg agatagatca ggtgtgggaa gagtttggtt tcaaaatggg accttttaga      1560
gtgtcagatc ttgctggatt ggatgtgggt tggaaatctc gacaggggca aggtcttact      1620
ggacctatgg tgctctcagg aactcctgcc cggaagcgag gcaacaggag atactgtcca      1680
attcctgacg tgctctgtga atcaggacga tttggccaga agacagggaa aggttggtac      1740
caatatgata agccattggg taggattcac aaacctgacc cctggcttct tgaatttctg      1800

```

tcacagtaca gaaaaaccta tcacattgag ccacgtatca ttagccagga tgagatcctt 1860
gagcggttgct tatattcact tatcaatgaa gcattccgta tcttggggaga agggatggct 1920
gctgatccag agcacattga tgttgtctat ttacacgggt acggatggcc aaggcatagg 1980
gggtggaccca tgttctatgc ctccacagtt gggttgcca cagtgcctaga gaagttgcaa 2040
aaatattaca ggcagaatcc tgatattcca caactagagc cttgtgacta tctgaaaaaa 2100
ttggcttccc tgggcaaccc gcctctgaaa gaatggcaaa gcttggcagg ctcccctagc 2160
agtaaattg 2169

<210> 2
<211> 723
<212> PRT
<213> Canis familiaris

<400> 2

Met Ala Glu Tyr Thr Arg Leu His Asn Ala Leu Ala Leu Ile Arg Leu
1 5 10 15
Arg Asn Pro Pro Val Asn Ala Ile Ser Thr Ala Val Leu Arg Gly Ile
20 25 30
Lys Asp Gly Leu Gln Lys Ala Thr Thr Asp Arg Thr Val Lys Ala Ile
35 40 45
Val Leu Cys Gly Ala Asp Gly Lys Phe Ser Ala Gly Ala Asp Ile His
50 55 60
Ser Phe Gly Glu Pro Arg Lys Ser Asp Phe Val Leu Gly His Ile Val
65 70 75 80
Asp Glu Ile Gln Arg Thr Glu Lys Pro Val Val Ala Ala Ile Gln Gly
85 90 95
Leu Ala Leu Gly Gly Gly Leu Glu Leu Ala Leu Gly Cys His Tyr Arg
100 105 110
Ile Ala His Ala Glu Ala Gln Ile Gly Phe Pro Glu Val Thr Leu Gly
115 120 125
Ile Leu Pro Gly Ala Arg Gly Thr Gln Leu Leu Pro Arg Leu Ile Gly
130 135 140
Val Pro Ala Ala Leu Asp Leu Ile Thr Ser Gly Arg His Val Leu Ala
145 150 155 160
Asp Glu Ala Leu Lys Leu Gly Ile Leu Asp Glu Ile Val Asn Ser Asp
165 170 175
Pro Val Glu Glu Ala Ile Lys Leu Ala Gln Arg Ile Ser Asp Gln Ser
180 185 190
Leu Glu Ser Arg Arg Leu Cys Asn Lys Pro Ile Gln Ser Leu Pro Asn
195 200 205
Met Glu Ser Ile Phe Ser Glu Ala Leu Ser Lys Met Gln Lys Gln His
210 215 220
Pro Gly Cys Leu Ala Pro Glu Thr Cys Val Arg Ala Val Gln Ala Ala
225 230 235 240

Val His Cys Pro Tyr Glu Val Gly Ile Gln Lys Glu Lys Glu Leu Phe
 245 250 255
 Met Tyr Leu Gln Lys Ser Gly Gln Ala Arg Ala Leu Gln Tyr Ala Phe
 260 265 270
 Phe Ala Glu Arg Asn Ala Thr Lys Trp Ser Thr Pro Ser Gly Ala Ser
 275 280 285
 Trp Lys Thr Ala Ile Ala Gln Pro Ile Ser Ser Val Gly Val Val Gly
 290 295 300
 Leu Gly Thr Met Gly Arg Gly Ile Val Val Ser Leu Ala Lys Ala Lys
 305 310 315 320
 Ile Pro Val Ile Ala Val Glu Ser Asp Lys Lys Gln Leu Glu Thr Ala
 325 330 335
 Asp Met Ile Ile Thr Thr Leu Leu Glu Lys Glu Ala Ser Lys Met Gln
 340 345 350
 Arg Ser Ser His Pro Ser Leu Gly Pro Lys Pro Arg Leu Thr Thr Ser
 355 360 365
 Met Lys Glu Leu Gly Gly Val Asp Leu Val Ile Glu Ala Val Phe Glu
 370 375 380
 Glu Ile Asn Leu Lys Lys Arg Val Phe Ala Glu Leu Ser Ala Ile Cys
 385 390 395 400
 Lys Pro Glu Ala Phe Leu Cys Thr Asn Thr Ser Ala Leu Asp Ile Asp
 405 410 415
 Glu Ile Ala Ser Ser Thr Asp Arg Pro His Leu Val Ile Gly Thr His
 420 425 430
 Phe Phe Ser Pro Ala His Val Met Lys Leu Leu Glu Ile Ile Pro Ser
 435 440 445
 Gln Tyr Ser Ser Pro Thr Thr Ile Ala Thr Val Met Asn Leu Ser Lys
 450 455 460
 Lys Ile Lys Lys Ile Gly Val Val Val Gly Asn Cys Phe Gly Phe Val
 465 470 475 480
 Gly Asn Arg Met Leu Lys Pro Tyr Tyr Asn Gln Thr Tyr Phe Leu Leu
 485 490 495
 Glu Glu Gly Ser Arg Pro Glu Glu Ile Asp Gln Val Leu Glu Glu Phe
 500 505 510
 Gly Phe Lys Met Gly Pro Phe Arg Val Ser Asp Leu Ala Gly Leu Asp
 515 520 525
 Val Gly Trp Lys Ser Arg Gln Gly Gln Gly Leu Thr Gly Pro Met Val
 530 535 540
 Pro Ser Gly Thr Pro Ala Arg Lys Arg Gly Asn Arg Arg Tyr Cys Pro
 545 550 555 560

Ile Pro Asp Leu Leu Cys Glu Ser Gly Arg Phe Gly Gln Lys Thr Gly
565 570 575

Lys Gly Trp Tyr Gln Tyr Asp Lys Pro Leu Gly Arg Ile His Lys Pro
580 585 590

Asp Pro Trp Leu Ser Glu Phe Leu Ser Gln Tyr Arg Lys Thr Tyr His
595 600 605

Ile Glu Pro Arg Ile Ile Ser Gln Asp Glu Ile Leu Glu Arg Cys Leu
610 615 620

Tyr Ser Leu Ile Asn Glu Ala Phe Arg Ile Leu Gly Glu Gly Met Ala
625 630 635 640

Ala Asp Pro Glu His Ile Asp Val Val Tyr Leu His Gly Tyr Gly Trp
645 650 655

Pro Arg His Arg Gly Gly Pro Met Phe Tyr Ala Ser Thr Val Gly Leu
660 665 670

Pro Thr Val Leu Glu Lys Leu Gln Lys Tyr Tyr Arg Gln Asn Pro Asp
675 680 685

Ile Pro Gln Leu Glu Pro Cys Asp Tyr Leu Lys Lys Leu Ala Ser Leu
690 695 700

Gly Asn Pro Pro Leu Lys Glu Trp Gln Ser Leu Ala Gly Ser Pro Ser
705 710 715 720

Ser Lys Leu

<210> 3
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Primer Sequence

<400> 3
atggccgagt atacgggct gcacaacgcc

30

<210> 4
<211> 31
<212> DNA
<213> Artificial

<220>
<223> Primer Sequence

<400> 4
tcacaattta ctgctagggg agcctgcaa g

31

<210> 5
<211> 24
<212> DNA
<213> Artificial

<220>
<223> Primer Sequence

<400> 5
cttatattca cttatcaatg aagc

24

<210> 6
 <211> 23
 <212> DNA
 <213> Artificial

 <220>
 <223> Primer Sequence

 <400> 6
 gtagttgtag gtaactgttt tgg 23

<210> 7
 <211> 24
 <212> DNA
 <213> Artificial

 <220>
 <223> Primer Sequence

 <400> 7
 gacactctaa aaggtcccat ttg 24

<210> 8
 <211> 22
 <212> DNA
 <213> Artificial

 <220>
 <223> Primer Sequence

 <400> 8
 cctcaaatac tgcttcaatg ac 22

<210> 9
 <211> 23
 <212> DNA
 <213> Artificial

 <220>
 <223> Primer Sequence

 <400> 9
 gattgcttct tcaaccgggt ctg 23

<210> 10
 <211> 22
 <212> DNA
 <213> Artificial

 <220>
 <223> Primer Sequence

 <400> 10
 cacttgactt aattacctca gg 22

<210> 11
 <211> 2169
 <212> DNA
 <213> Homo sapiens

 <400> 11
 atggccgagt atacgaggct gcacaacgcc ttggcgctaa tccgcctccg aaacccgccc 60
 gtcaacgcga tcagtacgac ttactccgt gatataaaag aaggactaca gaaagctgga 120
 agagaccata caataaaagc cattgtgatt tgtggagcag agggcaaatt ttctgcaggt 180
 gctgatattc gtggcttcag tgctcctagg acatttgGCC ttatactggg acatgtagta 240
 gatgaaatac agagaaatga gaagcccgtg gtggcagcaa tccaaggcat ggctttcggg 300
 gggggactag agctggccct gggctgtcac tataggattg cccacgcaga cgctcaagtt 360
 ggcttaccag aagttacact tggacttctc cctggtgcaa gaggaacca gcttctcccc 420
 agactcactg gagttcctgc tgcacttgac ttaattacct caggaagacg tatttttagca 480

gatgaagcac tcaagctggg cattctagat aaagttgtaa actcagaccc ggttgaagaa 540
gcaatcagat ttgctcagag agtttcagat caacctctag aatcccgtag actctgcaac 600
aagccaattc agagcttgcc caacatggac agcattttta gtgaggccct cttgaagatg 660
cggaggcagc accctgggtg tcttgacag gaggtctgtg tccgtgcagt ccaggctgct 720
gtgcagtatc cctatgaagt gggcatcaag aaggaggagg agctgtttct atatcttttg 780
caatcagggc aggctagagc cctgcaatat gctttcttcg ctgaaaggaa agcaaataag 840
tggatcaactc cctccggagc atcgtggaaa acagcatcag cgcggcctgt ctcctcagtt 900
gggtgtgttg gcttgggaac aatgggccga ggcattgtca tttcttttgc aagggccagg 960
attctctgtg ttggtgtaga ctccggacaaa aaccagctag caactgcaaa caagatgata 1020
acctctgtct tggaaaaaga agcctccaaa atgcaacaga gcggccaccc ttggtcagga 1080
ccaaaaccca ggttaacttc atctgtgaag gagcttggtg gtgtagattt agtcattgaa 1140
gcagtatttg aggaaatgag cctgaagaag caggctcttg ctgaactctc agctgtgtgc 1200
aaaccagaag catttttctg cactaatact tcagccctgg atgttgatga gattgcttct 1260
tccactgacg gtctcactt ggtcattggc acccacttct ttccgccagc tcatgtcatg 1320
aagttgttag aggttattcc cagccaatac tcttcccca ctaccattgc cactgttatg 1380
aacttatcaa aaaagattaa aaagattgga gtcgtttag gcaactgttt tggatttctg 1440
gggaatcgaa tgttgaatcc ttactacaat caggcatatt tcttgtaga agaaggcagc 1500
aaaccagagg aggtagatca ggtgctggaa gagtttggtt ttaaaatggg accttttaga 1560
gtgtctgacg ttgctgggtt ggatgtgggc tggaaatcta gaaaggggca aggtcttact 1620
ggacctacat tgcttccagg aactcctgcc cgaaaaagg gtaataggag gtactgcca 1680
attcctgatg tgctctgtga attaggacga tttggccaga agacaggtaa gggttggtat 1740
caatatgaca agccattggg taggattcac aaacctgac cctggcttcc cacattccta 1800
tcacggtata gaaaaccca tcacattgaa ccacgtacca ttagccagga tgagatcctt 1860
gaacgctgct tatattcact tatcaatgaa gcattccgta tcttgggaga agggatagct 1920
gctagcccag agcacattga tgtgtctat ttacatggat atggatgcgc aaggcacaag 1980
ggcgggcccc tgttctatgc ttccacagtt ggggtgcccc cagttctaga gaaattgcag 2040
aaatattaca ggcagaaccc tgatattccc caactggagc caagtgacta tctaaaaaaa 2100
ctggcttctc agggaaaccc tccctgaaa gaatggcaaa gcttggcagg ctcccctagc 2160
agtaaattg 2169

<210> 12
<211> 723
<212> PRT
<213> Homo sapiens

<400> 12

Met Ala Glu Tyr Thr Arg Leu His Asn Ala Leu Ala Leu Ile Arg Leu
1 5 10 15

Arg Asn Pro Pro Val Asn Ala Ile Ser Thr Thr Leu Leu Arg Asp Ile
20 25 30

Lys Glu Gly Leu Gln Lys Ala Gly Arg Asp His Thr Ile Lys Ala Ile
35 40 45

Val Ile Cys Gly Ala Glu Gly Lys Phe Ser Ala Gly Ala Asp Ile Arg
50 55 60

Gly Phe Ser Ala Pro Arg Thr Phe Gly Leu Ile Leu Gly His Val Val
 65 70 75 80
 Asp Glu Ile Gln Arg Asn Glu Lys Pro Val Val Ala Ala Ile Gln Gly
 85 90 95
 Met Ala Phe Gly Gly Gly Leu Glu Leu Ala Leu Gly Cys His Tyr Arg
 100 105 110
 Ile Ala His Ala Asp Ala Gln Val Gly Leu Pro Glu Val Thr Leu Gly
 115 120 125
 Leu Leu Pro Gly Ala Arg Gly Thr Gln Leu Leu Pro Arg Leu Thr Gly
 130 135 140
 Val Pro Ala Ala Leu Asp Leu Ile Thr Ser Gly Arg Arg Ile Leu Ala
 145 150 155 160
 Asp Glu Ala Leu Lys Leu Gly Ile Leu Asp Lys Val Val Asn Ser Asp
 165 170 175
 Pro Val Glu Glu Ala Ile Arg Phe Ala Gln Arg Val Ser Asp Gln Pro
 180 185 190
 Leu Glu Ser Arg Arg Leu Cys Asn Lys Pro Ile Gln Ser Leu Pro Asn
 195 200 205
 Met Asp Ser Ile Phe Ser Glu Ala Leu Leu Lys Met Arg Arg Gln His
 210 215 220
 Pro Gly Cys Leu Ala Gln Glu Ala Cys Val Arg Ala Val Gln Ala Ala
 225 230 235 240
 Val Gln Tyr Pro Tyr Glu Val Gly Ile Lys Lys Glu Glu Glu Leu Phe
 245 250 255
 Leu Tyr Leu Leu Gln Ser Gly Gln Ala Arg Ala Leu Gln Tyr Ala Phe
 260 265 270
 Phe Ala Glu Arg Lys Ala Asn Lys Trp Ser Thr Pro Ser Gly Ala Ser
 275 280 285
 Trp Lys Thr Ala Ser Ala Arg Pro Val Ser Ser Val Gly Val Val Gly
 290 295 300
 Leu Gly Thr Met Gly Arg Gly Ile Val Ile Ser Phe Ala Arg Ala Arg
 305 310 315 320
 Ile Pro Val Ile Gly Val Asp Ser Asp Lys Asn Gln Leu Ala Thr Ala
 325 330 335
 Asn Lys Met Ile Thr Ser Val Leu Glu Lys Glu Ala Ser Lys Met Gln
 340 345 350
 Gln Ser Gly His Pro Trp Ser Gly Pro Lys Pro Arg Leu Thr Ser Ser
 355 360 365
 Val Lys Glu Leu Gly Gly Val Asp Leu Val Ile Glu Ala Val Phe Glu
 370 375 380

Glu Met Ser Leu Lys Lys Gln Val Phe Ala Glu Leu Ser Ala Val Cys
 385 390 395 400
 Lys Pro Glu Ala Phe Leu Cys Thr Asn Thr Ser Ala Leu Asp Val Asp
 405 410 415
 Glu Ile Ala Ser Ser Thr Asp Arg Pro His Leu Val Ile Gly Thr His
 420 425 430
 Phe Phe Ser Pro Ala His Val Met Lys Leu Leu Glu Val Ile Pro Ser
 435 440 445
 Gln Tyr Ser Ser Pro Thr Thr Ile Ala Thr Val Met Asn Leu Ser Lys
 450 455 460
 Lys Ile Lys Lys Ile Gly Val Val Val Gly Asn Cys Phe Gly Phe Val
 465 470 475 480
 Gly Asn Arg Met Leu Asn Pro Tyr Tyr Asn Gln Ala Tyr Phe Leu Leu
 485 490 495
 Glu Glu Gly Ser Lys Pro Glu Glu Val Asp Gln Val Leu Glu Glu Phe
 500 505 510
 Gly Phe Lys Met Gly Pro Phe Arg Val Ser Asp Leu Ala Gly Leu Asp
 515 520 525
 Val Gly Trp Lys Ser Arg Lys Gly Gln Gly Leu Thr Gly Pro Thr Leu
 530 535 540
 Leu Pro Gly Thr Pro Ala Arg Lys Arg Gly Asn Arg Arg Tyr Cys Pro
 545 550 555 560
 Ile Pro Asp Val Leu Cys Glu Leu Gly Arg Phe Gly Gln Lys Thr Gly
 565 570 575
 Lys Gly Trp Tyr Gln Tyr Asp Lys Pro Leu Gly Arg Ile His Lys Pro
 580 585 590
 Asp Pro Trp Leu Ser Thr Phe Leu Ser Arg Tyr Arg Lys Pro His His
 595 600 605
 Ile Glu Pro Arg Thr Ile Ser Gln Asp Glu Ile Leu Glu Arg Cys Leu
 610 615 620
 Tyr Ser Leu Ile Asn Glu Ala Phe Arg Ile Leu Gly Glu Gly Ile Ala
 625 630 635 640
 Ala Ser Pro Glu His Ile Asp Val Val Tyr Leu His Gly Tyr Gly Cys
 645 650 655
 Ala Arg His Lys Gly Gly Pro Met Phe Tyr Ala Ser Thr Val Gly Leu
 660 665 670
 Pro Thr Val Leu Glu Lys Leu Gln Lys Tyr Tyr Arg Gln Asn Pro Asp
 675 680 685
 Ile Pro Gln Leu Glu Pro Ser Asp Tyr Leu Lys Lys Leu Ala Ser Gln
 690 695 700

Gly Asn Pro Pro Leu Lys Glu Trp Gln Ser Leu Ala Gly Ser Pro Ser
705 710 715 720

Ser Lys Leu

<210> 13
<211> 2154
<212> DNA
<213> Mus musculus

<400> 13
atggctgagt atctgaggct gccccactcc ctggctatga tccgcctctg caatccaccg 60
gtcaatgccca tcagtccaac tgtaatcaca gaagtaagga atggactcca gaaagctagt 120
ttggaccata cggtttagagc catagtgatc tgtggagcaa atgacaactt ctgtgcaggt 180
gctgatatcc atggctttta atctcccact ggctttacat taggaagctt ggtagatgaa 240
atacagcgat accagaagcc agtgggtggc gccatccaag gcgtggctct tggaggagga 300
ctagagctgg ccttgggctg tcactatcgg attgccaatg caaaggctcg tgttggcttc 360
ccggaagtga tgctgggaat tcttcctggt gcaagaggaa cgcagcttct acccagggtc 420
gttggagttc ctgttgctct tgacttaatt acctcaggaa gacatatttc aacagatgaa 480
gcactcaagc ttggaattct ggatgtagtt gtaaagtcag acccagttga agaagccatc 540
aaatttgctc agacggttat aggtaaaccc atagaacccc gcaggatcct aaacaagcca 600
gtcccaagct tgcccaacat ggacagtgtt tttgcagaag ccattgccaa ggtacggaag 660
cagtaccctg gccgcctggc tccggagact tgtgtccgtt cagtccaggc ctccgtgaag 720
catccatatt aagtggccat caaggaagaa gcaaagctgt ttatgtacct tcgggggtcg 780
gggcaggcta gagccctgca gtacgccttt tttgctgaaa agtctgcaa taagtgttca 840
actccctcag gagcatcttg gaaaacagca tctgctcaac ccgtctcttc ggttgggtgt 900
cttggcttgg gaacgatggg ccgaggcatc gccatctctt ttgcaagggt ggggatccct 960
gtggttgctg tagagtcaga ccaaagcag ctagatactg caaagaagat aataacttcc 1020
accttggaag aggaagcatc gaagagtggc caagcttcag caaaaccaa cctcaggttc 1080
tcctcatcca caaaggagct ttcgagtgtg gatttagtga ttgaagcagt gttcgaagat 1140
atgaacctga agaagaaggt cttcgctgaa ctgtcagccc tgtgcaagcc gggagccttt 1200
ctgtgcacca atacctcagc actggatgtg gatgacattg cttcttcac agatcgcccc 1260
cagctggtga ttggcacca cttcttctcc ccagcccaca tcatgaggtt actagaggtc 1320
attcctagcc gatactcttc cccactacc atcgccacag tcatgagctt atccaaaagg 1380
attggaaaga ttggagtcgt tgttggtaac tgctatggat ttgttgggaa tcgaatgttg 1440
gctccctatt acaaccaggg ctatttcttg atagaggaa gtagtaagcc agaggatgta 1500
gatgggtct tagaagagtt tggttttaga atgggaccct tcagggtgtc tgacctcgca 1560
gggctagatg tgggttgga agttcgcaa gggcaaggcc ttactggacc gtccttacct 1620
ccaggaaccc ccacccgaaa gaggggcaat accagggtact cccaattgc tgatatgctc 1680
tgtgaagctg ggcgatttgg tcagaagaca ggtaagggtc ggtatcagta tgacaagcca 1740
ctgggtcgca tccacaaacc tgatccctgg ctttctgagt ttctgtcaca gtatagagaa 1800
acccatcaca tcaagcagcg ctccatcagc aaggaggaaa tcctggagcg ttgcttatat 1860
tcccttatca acgaggcatt ccgcatcttg gaggagggga tggccgctag ccagagcac 1920
attgatgtca tctacttgca tgggtatggg tggccaaggc acgtgggttg gcccattgtac 1980
tatgctgcct cagttgggct gccacagtt ctagagaaat tgcagaaata ttacagacag 2040

aatcctgaca tccccagct ggagcccagt gactacctga ggaggctggt tgcccaggga 2100
agccctcttc tgaagaatg gcaaagcttg gcaggacccc atagcagcaa actg 2154

<210> 14
<211> 718
<212> PRT
<213> Mus musculus

<400> 14

Met Ala Glu Tyr Leu Arg Leu Pro His Ser Leu Ala Met Ile Arg Leu
1 5 10 15

Cys Asn Pro Pro Val Asn Ala Ile Ser Pro Thr Val Ile Thr Glu Val
20 25 30

Arg Asn Gly Leu Gln Lys Ala Ser Leu Asp His Thr Val Arg Ala Ile
35 40 45

Val Ile Cys Gly Ala Asn Asp Asn Phe Cys Ala Gly Ala Asp Ile His
50 55 60

Gly Phe Lys Ser Pro Thr Gly Leu Thr Leu Gly Ser Leu Val Asp Glu
65 70 75 80

Ile Gln Arg Tyr Gln Lys Pro Val Val Ala Ala Ile Gln Gly Val Ala
85 90 95

Leu Gly Gly Gly Leu Glu Leu Ala Leu Gly Cys His Tyr Arg Ile Ala
100 105 110

Asn Ala Lys Ala Arg Val Gly Phe Pro Glu Val Met Leu Gly Ile Leu
115 120 125

Pro Gly Ala Arg Gly Thr Gln Leu Leu Pro Arg Val Val Gly Val Pro
130 135 140

Val Ala Leu Asp Leu Ile Thr Ser Gly Arg His Ile Ser Thr Asp Glu
145 150 155 160

Ala Leu Lys Leu Gly Ile Leu Asp Val Val Val Lys Ser Asp Pro Val
165 170 175

Glu Glu Ala Ile Lys Phe Ala Gln Thr Val Ile Gly Lys Pro Ile Glu
180 185 190

Pro Arg Arg Ile Leu Asn Lys Pro Val Pro Ser Leu Pro Asn Met Asp
195 200 205

Ser Val Phe Ala Glu Ala Ile Ala Lys Val Arg Lys Gln Tyr Pro Gly
210 215 220

Arg Leu Ala Pro Glu Thr Cys Val Arg Ser Val Gln Ala Ser Val Lys
225 230 235 240

His Pro Tyr Glu Val Ala Ile Lys Glu Glu Ala Lys Leu Phe Met Tyr
245 250 255

Leu Arg Gly Ser Gly Gln Ala Arg Ala Leu Gln Tyr Ala Phe Phe Ala
260 265 270

Glu Lys Ser Ala Asn Lys Trp Ser Thr Pro Ser Gly Ala Ser Trp Lys
 275 280 285
 Thr Ala Ser Ala Gln Pro Val Ser Ser Val Gly Val Leu Gly Leu Gly
 290 295 300
 Thr Met Gly Arg Gly Ile Ala Ile Ser Phe Ala Arg Val Gly Ile Pro
 305 310 315 320
 Val Val Ala Val Glu Ser Asp Pro Lys Gln Leu Asp Thr Ala Lys Lys
 325 330 335
 Ile Ile Thr Ser Thr Leu Glu Lys Glu Ala Ser Lys Ser Gly Gln Ala
 340 345 350
 Ser Ala Lys Pro Asn Leu Arg Phe Ser Ser Ser Thr Lys Glu Leu Ser
 355 360 365
 Ser Val Asp Leu Val Ile Glu Ala Val Phe Glu Asp Met Asn Leu Lys
 370 375 380
 Lys Lys Val Phe Ala Glu Leu Ser Ala Leu Cys Lys Pro Gly Ala Phe
 385 390 395 400
 Leu Cys Thr Asn Thr Ser Ala Leu Asp Val Asp Asp Ile Ala Ser Ser
 405 410 415
 Thr Asp Arg Pro Gln Leu Val Ile Gly Thr His Phe Phe Ser Pro Ala
 420 425 430
 His Ile Met Arg Leu Leu Glu Val Ile Pro Ser Arg Tyr Ser Ser Pro
 435 440 445
 Thr Thr Ile Ala Thr Val Met Ser Leu Ser Lys Arg Ile Gly Lys Ile
 450 455 460
 Gly Val Val Val Gly Asn Cys Tyr Gly Phe Val Gly Asn Arg Met Leu
 465 470 475 480
 Ala Pro Tyr Tyr Asn Gln Gly Tyr Phe Leu Ile Glu Glu Gly Ser Lys
 485 490 495
 Pro Glu Asp Val Asp Gly Val Leu Glu Glu Phe Gly Phe Arg Met Gly
 500 505 510
 Pro Phe Arg Val Ser Asp Leu Ala Gly Leu Asp Val Gly Trp Lys Val
 515 520 525
 Arg Lys Gly Gln Gly Leu Thr Gly Pro Ser Leu Pro Pro Gly Thr Pro
 530 535 540
 Thr Arg Lys Arg Gly Asn Thr Arg Tyr Ser Pro Ile Ala Asp Met Leu
 545 550 555 560
 Cys Glu Ala Gly Arg Phe Gly Gln Lys Thr Gly Lys Gly Trp Tyr Gln
 565 570 575
 Tyr Asp Lys Pro Leu Gly Arg Ile His Lys Pro Asp Pro Trp Leu Ser
 580 585 590
 Glu Phe Leu Ser Gln Tyr Arg Glu Thr His His Ile Lys Gln Arg Ser

595	600	605
Ile Ser Lys Glu Glu Ile 610	Leu Glu Arg Cys Leu 615	Tyr Ser Leu Ile Asn 620
Glu Ala Phe Arg Ile 625	Leu Glu Glu Gly Met 630	Ala Ala Ser Pro Glu His 635 640
Ile Asp Val Ile 645	Tyr Leu His Gly Tyr 650	Gly Trp Pro Arg His Val Gly 655
Gly Pro Met 660	Tyr Tyr Ala Ala Ser 665	Val Gly Leu Pro Thr Val Leu Glu 670
Lys Leu Gln Lys Tyr Tyr 675	Arg Gln Asn Pro Asp 680	Ile Pro Gln Leu Glu 685
Pro Ser Asp Tyr Leu Arg 690	Arg Leu Val Ala Gln 695	Gly Ser Pro Pro Leu 700
Lys Glu Trp Gln Ser 705	Leu Ala Gly Pro His 710	Ser Ser Lys Leu 715

<210> 15
 <211> 2166
 <212> DNA
 <213> Rattus norvegicus

<400> 15
 atggctgagt atctgaggct gcccactcc ctggcgatga tccgcctctg caaccgccca 60
 gtcaacgccg tcagtccaac tgtaatcagg gaagtaagaa atggactcca gaaagctgga 120
 tcagaccaca cggttaaagc cattgtgatc tgtggcgcaa acggaaactt ctgtgcaggt 180
 gctgatatcc atggcttttag tgettttacc cctggccttg cattaggaag cttggtagat 240
 gaaatacaga gataccagaa gccggtgttg gccgctatcc aaggtgtggc tctcggagga 300
 ggactggagc tggccttggg ctgtcactat cggattgcca atgcaaaggc tcgtgtcggc 360
 ttgccagaag tcacactggg gattcttctt ggtgcaagag gaaccagct tctccccagg 420
 gtcgttggag ttctgttgc tcttgacctt attacctcag gaaaatatct ttcagcagat 480
 gaagcactca ggcttggaaat tctggatgca gtcgtgaagt cagaccagct tgaagaagcc 540
 atcaaatttg ctcagaagat tatagataaa ccatagaac cccgcaggat cttaacaag 600
 ccagtcccaa gcttgcccaa catggacagt gtttttgtag aagccatcgc caaggtacga 660
 aacagtagc ctggtgtcct ggctccggag acgtgtgtcc gctcaatcca ggctctgtg 720
 aagcatccct acgaagtagg catcaaggaa gaggaaaagc tgtttatgta cctccgggca 780
 tccgggcagg ctaaagccct acagtatgcc ttctttgctg aaaagtctgc aaataagtgg 840
 tcaactccct caggagcgtc ttggaaaaca gcctctgctc aaccgtctc ctcagttggc 900
 gttcttggct tgggaacgat gggccgagc atcgccattt cttttgagag agtggggatc 960
 tctgtggttg ctgtggagtc agaccctaaag cagctagatg ctgcaaagaa gataatcact 1020
 ttcaccttgg agaaggaagc atccagagcg catcagaacg gccaagcttc ggcaaaacca 1080
 aaactcaggt tctctcctc cacaaggaa ctttcaactg tggatttggg ggttgaagca 1140
 gtgttcgaag acatgaacct gaagaaaaag gtctttgctg agctgtcagc cctgtgcaag 1200
 ccaggagcct ttctgtgcac caatacctcg gcgctgaacg tggacgacat tgcttcttcc 1260
 acagatcgcc ctcagctggg gattggcacc cacttcttct caccagccca tgtcatgagg 1320

ttgctagagg tcattcctag ccgatactct tcccctacta ccatcgccac ggttatgagc 1380
 ttgtccaaaa agatcggaag gattggagta gtgggttgga actgctatgg atttgttggg 1440
 aatcggtatg tggctcccta ttacaaccag gggtttttct tgtagagga aggtagcaag 1500
 ccagaggatg tagacggggt cttggaagag tttggtttta aaatgggacc cttcagagtg 1560
 tcagacctcg cagggctaga tgtgggttgg aaaattcgca aggggcaagg ccttactgga 1620
 ccatcattgc caccaggac ccccgccga aagaggggca acagcaggta ctccccactt 1680
 ggcgatatgc tctgtgaagc tgggcggttt ggtcagaaga caggtaaagg ctggtatcag 1740
 tatgacaagc cactgggtcg catccacaaa cctgatccct ggctttctac gttcctgtca 1800
 caatatagag aggttcacca catcgagcag cgcacatca gcaaggagga gatcctggag 1860
 cgttgcttat attccctcat caatgaggcg ttccgcatct tggaggaggg gatggctgct 1920
 cgcccagagc acattgatgt catctacttg cacgggtacg ggtggccaag gcacaagggc 1980
 gggcccatgt tctatgctgc ctcagttggg ttgccacag ttctagagaa actgcagaaa 2040
 tattacaggc agaaccctga catccccag ctggagccca gtgactacct cagaaggctg 2100
 gtgcccagg gaagccctcc tctgaaggaa tggcaaagct tggcagggcc ccacggcagc 2160
 aaactg 2166

<210> 16
 <211> 722
 <212> PRT
 <213> Rattus norvegicus

<400> 16

Met Ala Glu Tyr Leu Arg Leu Pro His Ser Leu Ala Met Ile Arg Leu
 1 5 10 15
 Cys Asn Pro Pro Val Asn Ala Val Ser Pro Thr Val Ile Arg Glu Val
 20 25 30
 Arg Asn Gly Leu Gln Lys Ala Gly Ser Asp His Thr Val Lys Ala Ile
 35 40 45
 Val Ile Cys Gly Ala Asn Gly Asn Phe Cys Ala Gly Ala Asp Ile His
 50 55 60
 Gly Phe Ser Ala Phe Thr Pro Gly Leu Ala Leu Gly Ser Leu Val Asp
 65 70 75 80
 Glu Ile Gln Arg Tyr Gln Lys Pro Val Leu Ala Ala Ile Gln Gly Val
 85 90 95
 Ala Leu Gly Gly Gly Leu Glu Leu Ala Leu Gly Cys His Tyr Arg Ile
 100 105 110
 Ala Asn Ala Lys Ala Arg Val Gly Leu Pro Glu Val Thr Leu Gly Ile
 115 120 125
 Leu Pro Gly Ala Arg Gly Thr Gln Leu Leu Pro Arg Val Val Gly Val
 130 135 140
 Pro Val Ala Leu Asp Leu Ile Thr Ser Gly Lys Tyr Leu Ser Ala Asp
 145 150 155 160
 Glu Ala Leu Arg Leu Gly Ile Leu Asp Ala Val Val Lys Ser Asp Pro
 165 170 175

Val Glu Glu Ala Ile Lys Phe Ala Gln Lys Ile Ile Asp Lys Pro Ile
 180 185 190
 Glu Pro Arg Arg Ile Phe Asn Lys Pro Val Pro Ser Leu Pro Asn Met
 195 200 205
 Asp Ser Val Phe Ala Glu Ala Ile Ala Lys Val Arg Lys Gln Tyr Pro
 210 215 220
 Gly Val Leu Ala Pro Glu Thr Cys Val Arg Ser Ile Gln Ala Ser Val
 225 230 235 240
 Lys His Pro Tyr Glu Val Gly Ile Lys Glu Glu Glu Lys Leu Phe Met
 245 250 255
 Tyr Leu Arg Ala Ser Gly Gln Ala Lys Ala Leu Gln Tyr Ala Phe Phe
 260 265 270
 Ala Glu Lys Ser Ala Asn Lys Trp Ser Thr Pro Ser Gly Ala Ser Trp
 275 280 285
 Lys Thr Ala Ser Ala Gln Pro Val Ser Ser Val Gly Val Leu Gly Leu
 290 295 300
 Gly Thr Met Gly Arg Gly Ile Ala Ile Ser Phe Ala Arg Val Gly Ile
 305 310 315 320
 Ser Val Val Ala Val Glu Ser Asp Pro Lys Gln Leu Asp Ala Ala Lys
 325 330 335
 Lys Ile Ile Thr Phe Thr Leu Glu Lys Glu Ala Ser Arg Ala His Gln
 340 345 350
 Asn Gly Gln Ala Ser Ala Lys Pro Lys Leu Arg Phe Ser Ser Ser Thr
 355 360 365
 Lys Glu Leu Ser Thr Val Asp Leu Val Val Glu Ala Val Phe Glu Asp
 370 375 380
 Met Asn Leu Lys Lys Lys Val Phe Ala Glu Leu Ser Ala Leu Cys Lys
 385 390 395 400
 Pro Gly Ala Phe Leu Cys Thr Asn Thr Ser Ala Leu Asn Val Asp Asp
 405 410 415
 Ile Ala Ser Ser Thr Asp Arg Pro Gln Leu Val Ile Gly Thr His Phe
 420 425 430
 Phe Ser Pro Ala His Val Met Arg Leu Leu Glu Val Ile Pro Ser Arg
 435 440 445
 Tyr Ser Ser Pro Thr Thr Ile Ala Thr Val Met Ser Leu Ser Lys Lys
 450 455 460
 Ile Gly Lys Ile Gly Val Val Val Gly Asn Cys Tyr Gly Phe Val Gly
 465 470 475 480
 Asn Arg Met Leu Ala Pro Tyr Tyr Asn Gln Gly Phe Phe Leu Leu Glu
 485 490 495

Glu Gly Ser Lys Pro Glu Asp Val Asp Gly Val Leu Glu Glu Phe Gly
 500 505 510
 Phe Lys Met Gly Pro Phe Arg Val Ser Asp Leu Ala Gly Leu Asp Val
 515 520 525
 Gly Trp Lys Ile Arg Lys Gly Gln Gly Leu Thr Gly Pro Ser Leu Pro
 530 535 540
 Pro Gly Thr Pro Val Arg Lys Arg Gly Asn Ser Arg Tyr Ser Pro Leu
 545 550 555 560
 Gly Asp Met Leu Cys Glu Ala Gly Arg Phe Gly Gln Lys Thr Gly Lys
 565 570 575
 Gly Trp Tyr Gln Tyr Asp Lys Pro Leu Gly Arg Ile His Lys Pro Asp
 580 585 590
 Pro Trp Leu Ser Thr Phe Leu Ser Gln Tyr Arg Glu Val His His Ile
 595 600 605
 Glu Gln Arg Thr Ile Ser Lys Glu Glu Ile Leu Glu Arg Cys Leu Tyr
 610 615 620
 Ser Leu Ile Asn Glu Ala Phe Arg Ile Leu Glu Glu Gly Met Ala Ala
 625 630 635 640
 Arg Pro Glu His Ile Asp Val Ile Tyr Leu His Gly Tyr Gly Trp Pro
 645 650 655
 Arg His Lys Gly Gly Pro Met Phe Tyr Ala Ala Ser Val Gly Leu Pro
 660 665 670
 Thr Val Leu Glu Lys Leu Gln Lys Tyr Tyr Arg Gln Asn Pro Asp Ile
 675 680 685
 Pro Gln Leu Glu Pro Ser Asp Tyr Leu Arg Arg Leu Val Ala Gln Gly
 690 695 700
 Ser Pro Pro Leu Lys Glu Trp Gln Ser Leu Ala Gly Pro His Gly Ser
 705 710 715 720
 Lys Leu